GO SOLAR CALIFORNIA

CSI RD&D PROGRAM

Cross-Cutting

Grantee:
Tri-Technic

CSI RD&D Funding:
$96,001

Match Funding:
$67,040

**Project Timeframe:**
2014-2015

RD&D Project Portal:
calsolarresearch.ca.gov/csi/119

Supervisory Controller for Photovoltaic and Storage Microgrids

Smart microgrid control systems use large datasets to forecast photovoltaic generation, energy, demand, and battery charge and discharge events in an effort to minimize both cost and grid interactions. Tri-Technic installed a combination photovoltaic (PV) panel and battery system at Fort Hunter Liggert Army base. This system is controlled by the Distributed Energy Resources Customer Adoption Model (DER-CAM), a decision support tool designed at Berkeley National Labs.

DER-CAM reads in current, historical, and forecasted weather data to predict energy generation throughout the day. Forecasts are adjusted in real time to reflect actual demand and accuracy improves as more data become available. The system optimizes utility purchase, energy storage and export decisions based on both the values of these forecasts and the established priorities linked to statewide grid demand and energy prices at peak, near-peak, and off-peak hours, which should result in significant cost savings.
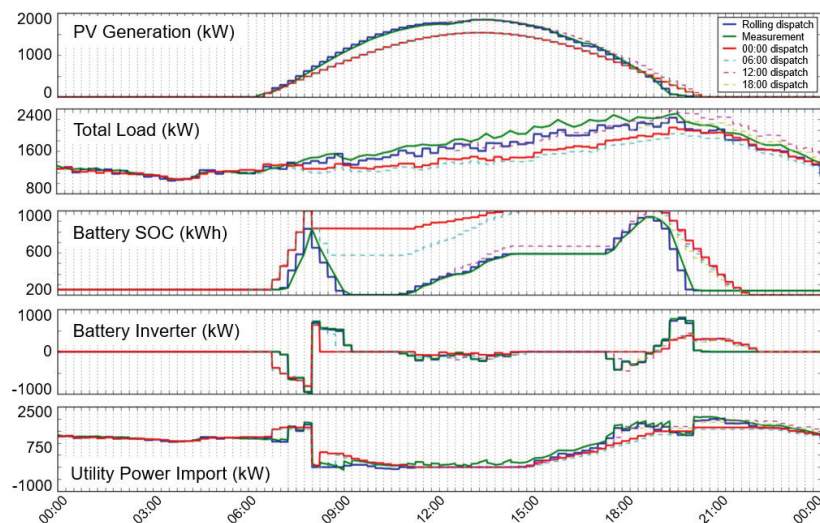
Predictions and actual values of five state variables at various times of day. The dispatch time is the time at which the prediction was made.

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CSI RD&D PROGRAM MANAGER